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PATENTS
Agilent Docket No. 1094560-3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Kay Lichtenwalter

Serial No.: Continuation of 09/337,710 Group Art Unit: Unassigned

Parent Filed: June 21, 1999 Examiner: Unassigned

Title: DRY BIOCHEMICAL ASSAY PLATE AND METHOD FOR MAKING THE SAME

Box Patent Application
Commissioner for Patents
Washington, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Please enter the following amendment in this application.

At line 1, please enter the following new paragraph:

--This is a continuation of application serial number 09/337,710 filed on June 21, 1999, which is a continuation of serial number 08/412,498 filed on March 28, 1995 (now U.S. Patent No. 5,922,534 , from both of which priority is claimed and both of which are incorporated herein by reference.--

Please cancel Claims 1-14 and add the following new claims 15-42:

15. (NEW) An assay plate for detecting the presence of mobile reactants that bind to immobilized proteins, the assay plate comprising:

a glass substrate; and

a matrix of dried aliquots of immobilized proteins bound to the surface of the glass substrate, each immobilized protein binding a mobile reactant when a solution containing the mobile reactant is brought into contact with the immobilized protein.

16. (NEW) The assay plate of Claim 15 wherein each immobilized protein is a member of an antibody-antigen pair.

17. (NEW) The assay plate of Claim 15 further comprising a moisture proof covering for protecting the immobilized proteins from moisture during the storage of the assay plate.

18. (NEW) The assay plate of Claim 15 wherein the glass substrate is a fused silica substrate.

19. (NEW) A method for making an assay plate for detecting the presence of mobile reactants that bind immobilized proteins, the method comprising the steps of:

covalently binding the proteins to a glass substrate to immobilize the proteins;

washing the glass substrate to remove any of the proteins that fail to bind to the substrate; and

drying the glass substrate and the bound immobilized proteins.

20. (NEW) The method of Claim 19 wherein each immobilized protein is a member of an antibody-antigen pair.

21. (NEW) The method of Claim 19 further comprising the step of packaging the substrate in a moisture proof covering for protecting the dried immobilized proteins from moisture during the storage of the assay plate.

22. (NEW) The method of claim 19 further comprising the step of packaging the substrate in a moisture proof covering for protecting the immobilized proteins from moisture during the storage of the assay plate.

23. (NEW) The method of claim 19 wherein the step of covalently binding the immobilized proteins to a glass substrate comprises:

coating the substrate with a solution of amino propyl triethoxy silane;

linking the proteins that are to be immobilized to a linker;

depositing the linked proteins to the coated substrate as a matrix; and

incubating the glass substrate.

24. (NEW) A method for detecting a mobile reactant comprising the steps of:

providing a glass assay plate having a matrix of dried aliquots of proteins covalently bound thereon, each immobilized protein binding a mobile reactant when both the immobilized protein and the mobile reactant are in a wet state;

bringing a solution containing a mobile reactant into contact with the dried aliquots;

washing the assay plate;

treating with a dye that binds to one of the immobilized protein or the mobile reactant; and

determining the amount of mobile reactant bound to the washed assay plate by measuring the dye.

25. (NEW) The method of claim 24 further comprising the step of drying the washed assay plate prior to determining the amount of mobile reactant bound to the washed assay plate.

26. (NEW) The method of claim 25 wherein the step of determining the amount of mobile reactant is performed without adding water to the dried assay plate.

27. (NEW) The method of claim 24 wherein the step of treating with dye comprises binding the dye to the mobile reactant prior to bringing the solution into contact with the dried aliquots.

28. (NEW) The method of claim 24 wherein the step of treating with dye comprises depositing the dye on the matrix after bringing the solution into contact with the dried aliquots.

29. (NEW) A method for making an assay plate for detecting the presence of a mobile reactant that binds to an immobilized protein, the method comprising the steps of:

covalently binding a proteins to a glass substrate to immobilize the proteins as a matrix;

washing the substrate to remove any of the proteins that fails to bind to the glass substrate; and

drying the substrate and the bound immobilized proteins,

wherein the step of covalently binding the immobilized proteins to a glass substrate comprises:

coating the substrate with a solution of amino propyl thriethoxy silane;

linking the protein that is to be immobilized to a linker;

depositing the linked protein to the coated substrate; and

incubating the substrate, and

wherein the step of coating the glass substrate comprises coating a surface of the glass substrate with a one percent solution of amino propyl triethoxy silane in ninety-five percent ethanol, and incubating at room temperature in a covered enclosure.

30. (NEW) A method for making an assay plate for detecting the presence of a mobile reactant that binds to an immobilized protein, the method comprising the steps of:

covalently binding proteins to a glass substrate to immobilize the proteins as a matrix;

washing the glass substrate to remove any of the proteins that fails to bind to the substrate; and

drying the glass substrate and the bound immobilized proteins,

wherein the step of covalently binding the immobilized proteins to a glass substrate comprises:

coating the glass substrate with a solution of amino propyl thriethoxy silane;

linking the proteins that are to be immobilized to a linker;

depositing the linked proteins to the coated glass substrate; and

incubating the substrate, and

wherein the linker comprises Bis succinimydl suberate-homobifunctional NHS-ester.

31. (NEW) A method for making an assay plate for detecting the presence of a mobile reactant that binds to an immobilized protein, the method comprising the steps of:

covalently binding proteins to a glass substrate to immobilize the proteins as a matrix;

washing the glass substrate to remove any of the known proteins that fails to bind to the substrate; and

drying the substrate and the bound immobilized proteins,

wherein the drying step is carried out in an atmosphere of nitrogen.

32. (NEW) The method of claim 31 wherein the glass substrate is a fused silica substrate.

33. (NEW) A method for detecting a mobile nucleic acid comprising the steps of:

providing a glass assay plate having a dried aliquot of an immobilized nucleic acid bound thereon, the immobilized nucleic acid binding the mobile nucleic acid when both the immobilized nucleic acid and the mobile nucleic acid are in a [set] wet state;

bringing a solution containing the mobile nucleic acid into contact with the dried aliquot;

washing the assay plate;

drying the washed assay plate;

determining, while the washed assay plate is dry, the amount of mobile nucleic acid bound to the washed assay plate.

34. (NEW) A method according to claim 33 additionally comprising treating with a dye that binds to one of the immobilized nucleic acid or the mobile nucleic acid.

35. (NEW) The method of claim 32 wherein the step of treating with dye comprises binding the dye to the mobile nucleic acid prior to bringing the solution into contact with the dried aliquot.

36. (NEW) The method of claim 32 wherein the step of treating with dye comprises depositing the dye on the dried aliquot after bringing the solution into contact with the dried aliquot.

37. (NEW) The method of claim 33 wherein the assay plate has multiple dried aliquots thereon of different species or concentration.

38. (NEW) An assay plate for detecting the presence of a first predetermined type of oligonucleotide in a solution containing an unknown oligonucleotide, the assay plate comprising:

a glass substrate; and

a dried aliquot of a first known oligonucleotide, the dried aliquot covalently bonded to the glass substrate, the known oligonucleotide operative to bind the predetermined type of oligonucleotide upon contact with a solution containing such predetermined type of oligonucleotide.

39. (NEW) The assay plate of claim 38 wherein the predetermined type of oligonucleotide comprises a nucleic acid and the known oligonucleotide comprises a nucleic acid.

40. (NEW) The assay plate of claim 38 wherein the predetermined type of oligonucleotide and the known oligonucleotide comprise a complementary pair.

41. (NEW) The assay plate of claim 38 further comprising a moisture proof covering for protecting the dried aliquot from moisture during the storage of the assay plate.

42. (NEW) The assay plate of claim 38 further comprising a dried aliquot of a second known oligonucleotide, the dried aliquot of the second known oligonucleotide being at a different location on the substrate that the dried aliquot of the first known oligonucleotide, the second known oligonucleotide binding a second predetermined type of oligonucleotide in a solution.

Remarks

The above amendments are made to better define the invention being claimed in the present continuation.

Respectfully submitted,

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